

A REVISION OF *XEROPLANA* BRIQ. (STILBACEAE)

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ABSTRACT

The identity of *Xeroplana zeyheri* Briq. has been established and a new species, *Xeroplana gymnopharyngia* Rourke is described.

UITTREKSEL

'N HERSIENING VAN *XEROPLANA* BRIQ. (STILBACEAE)

Die identiteit van *Xeroplana zeyheri* Briq. is vasgestel en 'n nuwe soort, *Xeroplana gymnopharyngia* Rourke, word beskryf.

INTRODUCTION

Material of a member of the family Stilbaceae was collected by the author while climbing a relatively poorly explored series of peaks on the Langeberg, near Riversdale, in the southern Cape. Attempts to identify it met with failure as it could not be placed in any of the existing genera of the Stilbaceae, as described in the *Flora Capensis* and in Dyer's *The Genera of Southern African Flowering Plants* (1975). Five genera, namely *Campylostachys*, *Stilbe*, *Euthystachys*, *Xeroplana* and *Eurylobium* make up the family. All are characterized by having a distinctive ring of pubescence in the throat of the corolla tube. However, the throat of the corolla tube in the Riversdale material (*Rourke 1451*) was *completely glabrous*, thereby distinguishing it from all the above mentioned genera, although the bilabiate calyx and corolla suggested an affinity with the monotypic genus, *Xeroplana*. Accordingly, a careful examination of the type of *Xeroplana zeyheri* was essential since no other record of the species existed. The type was borrowed from the Delessert collection, Conservatoire et Jardin Botaniques, Geneva.

THE TYPE OF *XEROPLANA ZEYHERI*

After dissecting several flowers on the type specimen it became evident that there were a number of serious errors in Briquet's description. The ovary was found to be single chambered, containing a single basal ovule; not two chambered with an ovule in each chamber as indicated in Briquet's description and drawing. Moreover, the style was found to arise from the abaxial side of the ovary and not

in a median position as shown in the type illustration. Briquet's misinterpretations are so misleading that the identity of *Xeroplana* has remained a baffling enigma that has perplexed botanists ever since the name was originally published (Dyer, 1975). The type locality, cited as, "In Africa australi" only served to heighten the mystery.

Fortunately, however, a label in Zeyher's hand, attached to the type, gives Zeyher's locality code as 90.9, a point which Briquet appears to have overlooked. From this code the exact locality of the type can be established. In his catalogue of Zeyher's collecting stations, Drège (1847) gives this locality as; "banks of the Riviersonderend at Appelskraal and on adjacent mountains". Recent collections from this locality have been made and compared with the type of *Xeroplana zeyheri* which they match in all details. Thus the name *Xeroplana zeyheri* Briq. can now be confidently applied to living populations in the field. An emended description of *Xeroplana zeyheri* follows later in this paper.

XEROPLANA IN RELATION TO OTHER GENERA OF THE STILBACEAE

The generic status of *Xeroplana* may well be questionable in the light of the emended description of the type specimen. Superficially, *Xeroplana zeyheri* closely resembles *Stilbe ericoides* but may be separated from *Stilbe* by the bilabiate corolla. However, a very heterogeneous assemblage of material is filed under *Stilbe ericoides* in most herbaria, including some collections with distinctly bilabiate corollas. As a means of separating the two genera, the value of this character may therefore prove suspect. For the moment, however, *Xeroplana* is upheld and the unusual species which stimulated this investigation is here described as a new species of *Xeroplana*. It might even be deemed desirable at some stage in the future to give this latter species separate generic rank on the basis of the completely glabrous throat of the corolla tube—a character which is unique in the family Stilbaceae. But, as the Stilbaceae is already overburdened with monotypic genera it seems prudent to resist the temptation to create yet another, until a complete revision of the whole family can be undertaken. Clearly, a reappraisal of the generic limits will be a major consideration as Dyer (1975: 514) has already pointed out.

Xeroplana Briq. in Bull. Herb. Boiss. Ser (1) 4: 336 (1896); Pearson in Fl. Cap. 5: 188 (1901); Dyer, Gen of S.A. Fl. Pl. 1: 516 (1975). Type *X. zeyheri* Briq.

Ericoid shrublets. *Leaves* ericoid, crowded, in whorls of 3 or 4, patent to imbricate. *Inflorescence* a sessile terminal spike 5–15 mm long. *Flowers* sessile, subtended by an ericoid bract and a pair of opposite, clasping, floral bracts. *Calyx* tubular, 5 lobed, slightly bilabiate, glabrous or pubescent. *Corolla* tubular, 5 lobed, bilabiate, abaxially curved, the two posterior lobes erect, the three anterior lobes distinctly narrower than the posterior lobes; throat of corolla either with or

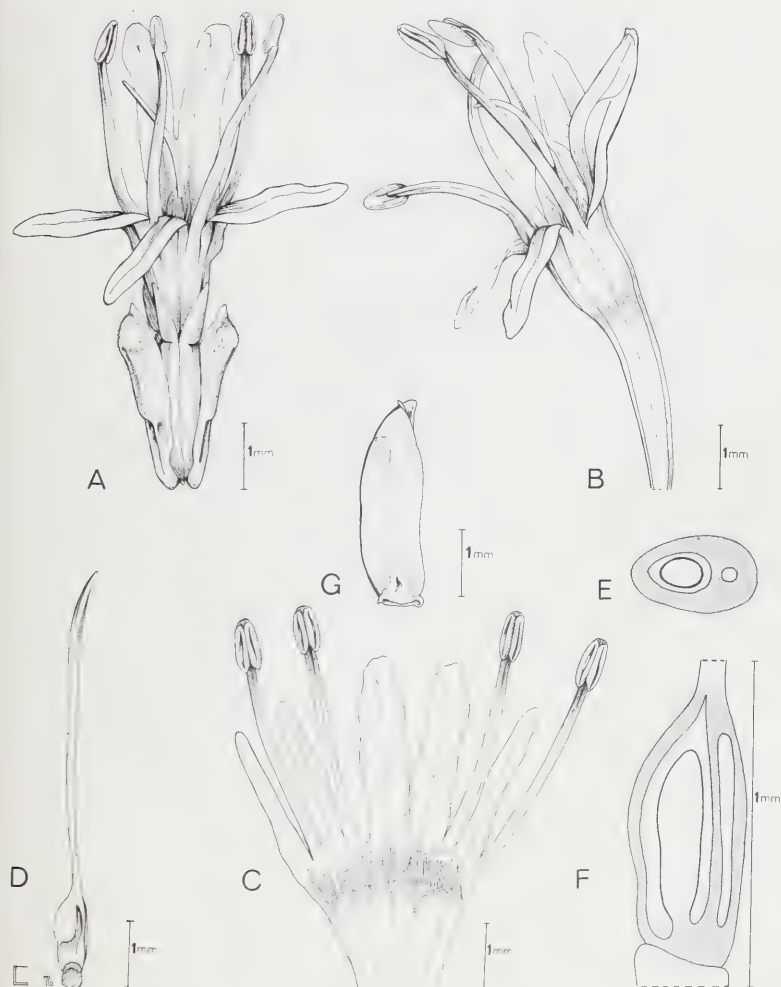


FIG. 1.
Xeroplana zeyheri Briq.

A. single flower and subtending floral bracts; B. lateral view of flower; C. corolla opened out to show ring of pubescence in throat; D. gynoecium showing ovary and style; E. transverse section of ovary; F. longitudinal section through ovary; G. fruit. (From *Rourke 1557*)

without a ring of pubescence. *Stamens* 4, inserted between the corolla sinuses of the anterior corolla lobes. *Style* filiform, exerted, arising from abaxial surface of the ovary. *Ovary* oblong, slightly flattened, potentially two chambered, but the abaxial chamber abortive leaving a single adaxial chamber with a solitary basal ovule.

KEY TO THE SPECIES OF *XEROPLANA*

Corolla tube with a distinct ring of pubescence in throat *zeyheri*
 Corolla tube glabrous inside *gymnopharyngia*

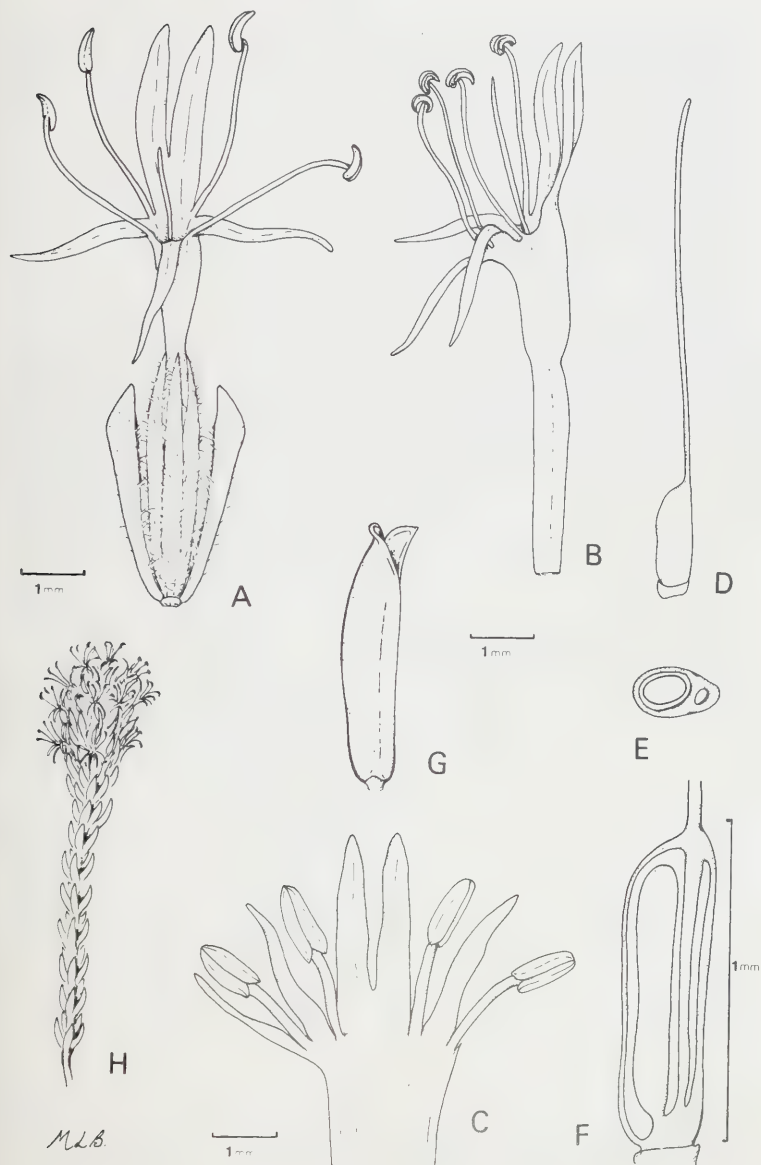
Xeroplana zeyheri Briq. in Bull. Herb. Boiss. Ser. (1) **4**: 336 (1896); Pearson in Fl. Cap. **5**: 188 (1901); Phill. Gen. of S.A. Pl. (ed. 2): 635 (1951); Dyer, Gen. of S.A. Fl. Pl. **1**: 516 (1975). Type: On the banks of the Riversonderend at Appelskraal and on adjacent mountains, 500–4 000 ft, anno 1833 (90.9), *Ecklon and Zeyher* sub *Stilbe* sp. nov. No. 8 in herb. Delessert (G!).

A low, erect, rounded, highly divaricate shrublet to 50 cm in height, with a single main stem up to 3 cm in diameter. *Branches* slender, erect, villous at first becoming glabrescent to glabrous later. *Leaves* 3–6 mm long, 3 nate, ericoid, patent; linear-subulate to semi-terete, apex acute; minutely petiolate, margins revolute; pubescent on under surface, otherwise glabrous. *Inflorescence* a sessile terminal spike 5–12 mm long. *Flowers* solitary, sessile, each subtended by a leaf-like bract. *Floral bracts* two, opposite, 2 mm long, narrowly lanceolate, acute, prominently keeled and cymbiform distally; upper surface villous. *Calyx* tubular, very slightly bilabiate, abaxially curved, 2–2.5 mm long; composed of 5 fused sepals, sepal lobes lanceolate and ciliate, villous on inner surface; outer surface of calyx glabrous. *Corolla* tubular, bilabiate, 3–4 mm long, very slightly abaxially curved; throat slightly dilated with a ring of dense pubescence on the inner surface; the two posterior corolla lobes erect, oblong—obtuse, 1.5–2 mm long, the three anterior lobes patent, lanceolate acute 1 mm long. *Stamens* four, subequal, inserted between the corolla sinuses of the anterior lobes; posterior stamen absent; filaments filiform, 2 mm long; anthers basifixed dehiscent longitudinally. *Style* filiform, 6–7 mm long, glabrous, arising from the abaxial surface of the ovary. *Ovary* oblong, 1 mm long, slightly compressed in vertical plane, potentially 2 chambered but the abaxial chamber abortive, leaving a single adaxial chamber with a solitary basal ovule.

Xeroplana zeyheri has been recorded only from the moist southern slopes of

FIG. 2.
Xeroplana gymnopharyngia Rourke.

A. single flower and subtending floral bracts; B. lateral view of flower; C. corolla opened out; D. gynoecium showing ovary and style; E. transverse section of ovary; F. longitudinal section through ovary; G. fruit; H. complete inflorescence. (From Rourke 1951)



the Riviersonderend mountains, directly above the village of Riviersonderend in the southern Cape, at elevations above 200 m. Although this species is evidently endemic to a very restricted area, fairly large numbers of individuals were observed at a site on a steep hillside in the Olifant's River valley, behind Tygerhoek Peak.

When flowering, the small rounded shrublets are fairly conspicuous as they are covered with inflorescences bearing bright pinkish flowers. Flowering commences in April and continues until the end of July. Although superficially similar to *Stilbe ericoides* which has a persistent lignotuber, *Xeroplana zeyheri* has a single main stem and is killed outright by veld fires.

SPECIMENS EXAMINED

CAPE PROVINCE—3419 (Caledon): Banks of the Riviersonderend at Appelskraal and on adjacent mountains, 500–4 000 ft (-BB), *Ecklon & Zeyher* sub *Stilbe* sp. nov. No. 8 in herb. Delessert (G); Kloof north of Riviersonderend, south eastern slopes above second water intake, 14.6.1974, *Goldblatt* 2062 (NBG); Kloof in Riviersonderend mountains, near Riviersonderend village, slope with north aspect above Kloof, 13.4.1974, *Esterhuysen* 33546 (BOL); Olifant's Kloof north of Riviersonderend, east slope of Olifant's river above uppermost weir, 15.7.1976, *Rourke* 1557 (NBG).

Xeroplana gymnopharyngia Rourke, sp. nov., a fauce glabra corollae statim distinguitur.

Fruticulus effusus ad prostratus, densus ramosissimus, 30–50 cm altus. *Folia* 3–4 verticillata, dense imbricata vel interdum patentia, 3–7 mm longa, 1,5 mm lata, lanceolata-acuta, marginibus revolutis; glabra sed supra scabridiuscula. *Inflorescentia* dense spicata, sessilis, 1–1,5 cm longa. *Flores* sessiles, solitari, bractea foliaceo subtenti. *Bractee florales* duae, oppositae, lineares acutae, carinatae, crassae apices versus. *Calyx* 5 mm longus, dense pilosus, tubularis-cylindraceus, 5-lobatus; lobi antichi fissi profundior quam lobi postici. *Corolla* tubularis, bilabiata, 5 lobata, glabra; tubus 5–6 mm longus, glaber intus; lobi 3–4 mm longi; lobi postici erecti, anguste oblongi-obtusi; lobi antichi anguste lanceolati-acuminati. *Stamina* 4, exerta; ad corolla inter sinubus anticis affixa. *Fila* 4–5 mm longa. *Stylus* 5 mm longus, filiformis, rectus, paginae abaxialis ovario exoriens. *Ovarium* oblongum, leviter compressum; primus vitae stadiis biloculare sed uniloculare ad maturitatem, ovulo singulari basilari; locus anticus abortivus.

A low, dense, much branched, sprawling to prostrate shrublet, forming mats up to 1 m in diameter and 30–50 cm in height. *Leaves* densely imbricate, occasionally spreading, 3–7 mm long, 1,5 mm wide, ericoid, in whorls of 3 or 4, lanceolate-acute with revolute margins; minutely petiolate; glabrous but minutely

scabrous on upper surface. *Inflorescence* a dense spike, 1–1.5 cm long, sessile. *Flowers* solitary, sessile, subtended by a leaf-like bract. *Floral bracts* 2, opposite, 4–5 mm long, linear acute, prominently keeled and thickened towards apex, membranous and hyaline proximally; sparsely pilose. *Calyx* 5 mm long, tubular-cylindric, 5 lobed, the 2 anterior lobes more deeply cleft than the 3 posterior lobes; outer surface densely pilose but becoming glabrous proximally. *Corolla* tubular, bilabiate, 5 lobed, glabrous; tube 5–6 mm long, lobes 3–4 mm long, the two posterior lobes erect, narrowly oblong, obtuse, the 3 anterior lobes narrowly lanceolate, acuminate. *Stamens* 4, exerted; inserted at mouth of corolla between the sinuses of the 4 anterior corolla lobes. Filaments 4–5 mm long. Anthers basifixed dehiscing by 2 longitudinal slits. *Style* 5 mm long, filiform, straight, arising from the abaxial end of the ovary, terminating in a simple stigma. *Ovary* oblong, slightly laterally compressed, glabrous; the style arising assymmetrically on the abaxial surface of the ovary; potentially 2-chambered but the abaxial chamber abortive, leaving the adaxial chamber with a single basal ovule. *Fruit* 5–6 mm long, cylindric, laterally compressed, curved, brown and shiny, glabrous, dehiscing into 2 valves at apex only. *Seed* not seen.

DIAGNOSTIC CHARACTERS

The absence of pubescence in the throat of the corolla at once distinguishes *Xeroplana gymnopharyngia* from all other members of the Stilbaceae.

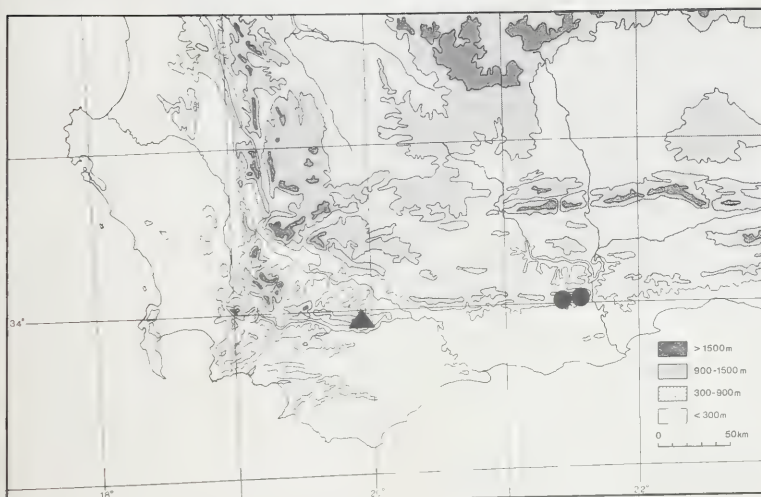


FIG. 3.
Distribution of *Xeroplana zeyheri* (triangle) and *X. gymnopharyngia* (dots).

Type Material: Langeberg mountains, Riversdale, above the farm Langkloof on "Annex Langekloof", along the summit ridge, 7.11.1974, *J. P. Rourke 1451* (NBG, holotype; PRE, BOL, K, MO, G, S, isotypes).

Only two collections of this species appear to have been made: originally by Dr. J. Muir in 1913 and more recently by the author in 1974. Little, therefore, is known about its distribution range apart from the fact that it extends along the landward ranges of the Langeberg from Langkloof Farm in the west to Witelsberg in the east, a distance of some 15–20 km. The mature plants form dense mats up to 1 m in diameter, sprawling over rocky Table Mountain Sandstone crags at elevations ranging from 900–1 200 m. Flowering specimens were recorded in November but the flowering season probably continues into December and even early January. The corolla is a pale dusky pink.

SPECIMENS EXAMINED

CAPE PROVINCE—3321 (Ladismith): Langeberg mountains, Riversdale, above the farm Langkloof on "Annex Langekloof", along summit ridge (-CD), 7.11.1974, *Rourke 1451* (NBG, PRE, BOL, K, MO, G, S); Summit of Langeberg above Witte Els, Nov. 1913, *Muir 1251* (PRE, BOL).

ACKNOWLEDGEMENT

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